NASA Academy

Goddard Space Flight Center

Program Description

And 2002 Activities - June 3 to August 9

"A decision to go to the NASA Academy is a decision to push your personal and professional envelopes to their limits. If you are ready to give completely to research, discovery, leadership, and group efforts then the Academy will help you to maximize your potential in your corner of the American Space Effort."
David Vaughan - Academy '95

Introduction

NASA's Charter, written in the 1958 Space Act, gives it the main role of using and exploring space for the betterment of humankind. Since then, the U.S. Congress and the President have supported NASA as its programs have evolved. President John F. Kennedy's vision of putting a man on the moon within the decade of the 1960's included much more than the Apollo lunar landing spectacular of newspaper fame. After Apollo's success, NASA has constantly sought to redefine its goals and fine-tune its schedule every year seeking a budget to match its imagination. The success of the Space Program results from the interaction of government, academia, and the private sector, each playing a critical and different role in the U.S. civilian program. Responsibilities overlap, leaders migrate from one sector to another, and interdependence changes with each new administration. NASA Academy is a unique summer institute of higher learning whose goal is to help guide potential future leaders of the American Space Program by giving them a glimpse of how this interactive system works.

"Whenever I am asked to relate my Academy experiences, I find it difficult to express in words what was for me a uniquely indescribable adventure. But if words are required, here are a few...intense, rewarding, exhausting, inspiring and unforgettable." *Jake Lopata - Academy '95*

Goddard Space Flight Center

The Goddard Space Flight Center (GSFC) is the scientific flagship of the Space Agency. About one half of all of NASA's civil service scientists work at Goddard. Goddard has about 3500 government employees plus approximately 8000 contractors, guests, students, post-doctorates, researchers, and visitors. Goddard has nine directorates: two in science, three in engineering, one in flight projects, one in management operations, one in sub-orbital projects, and one for the office of the Director.

The work of GSFC, as its name indicates, is "space flight." We believe that missions to space will bring new data that will allow us and our partners in academia and industry to better understand our world and our universe. Goddard's management makes this its credo. Goddard's success is not measured in launches or hardware or spacecraft; it is measured in discoveries, ideas and understanding.

It is this spirit that has led to the foundation of the NASA Academy. Space flight is not accomplished by 'rocket scientists' alone; it is done by scientific vision, innovative engineering, rigorous quality control, and involves flight managers, data and operations experts, and a whole team of lawyers, comptrollers, procurement people, technicians, programmers, and a workforce... all marching to the same tune. Goddard successes -- COBE, GRO, UARS, LANDSAT, TRMM, MAP, EOS, FIRST and SECOND HUBBLE SERVICING MISSION, HETE II, GOES-- and the list goes on to over a hundred missions, have changed the school textbooks and opened up whole new fields of science. People who visit Goddard marvel at the opportunity to experience a panorama of activities from inspiration to construction to management and interpretation of the whole science-engineering-operations effort. Clever students, working with the proper guidance during the summer months, will get a real taste of this.

"The NASA Academy is a dream-come-true experience, but only for those people seriously interested in the Space Program"
Warren Brown - Academy '93

The Academy

One goal of the Academy is to provide insight into all of the elements that make the NASA missions possible, while at the same time assigning the student participants to some of our best researcher groups where they can contribute to ongoing missions. The student participants are selected first by their local sponsoring State Space Grant Consortium, followed by screening and selection by a national panel and individual interviews. The "match" between students (Research Associates) and host researcher (Principal Investigator) will be done by mutual selection.

About 40% of the working time and most of the social time of the Research Associates (RAs) will be spent in

"group" or "team" oriented sessions. This time will be devoted to exchange of ideas, on forays into the highest level of decision making, prioritizing, planning, and executing space missions. This is done by interviews with leaders and motivators of the Space Program. Besides the local Goddard 'experts', meetings are arranged with legislators, business company presidents, international partners, and the other people who champion our cause. Additionally, RAs will have the opportunity to develop their leadership and team skills through an assigned Group Project. The remaining 60% of the working time will be spent in the laboratories of the selected Principal Investigators researching the technical project.

"The Academy is the definition of a full-time experience - If this was the summer you planned on catching up on your reading or exercising 4 hours a day - forget it! The three most important qualities you need to have are a PASSION for space and the future, a COMMITMENT to the Academy (you must "give" yourself to the Academy), and enough CONFIDENCE in yourself to believe you can change the world. Over only ten weeks you will garner more useful, real-world knowledge than you did all through college, meet an incredible number of brilliant and exciting people, and supply yourself with more tools than you could ever use to achieve your highest goals!"

Eric Anderson - Academy '95

Activities - June 3 to August 9

The Academy beginning and end dates were selected to give most students a breather before returning to school. We know this is a compromise, as school schedules vary. It is important that all students begin together and end together. The success of the Academy depends not on us as much as the student participants. NASA Academy does not accept people who are not able to attend this entire period. All students must be U.S. citizens or hold a "green card".

One of the cornerstones of the Academy is to assure that the students interact as a "team", and to spark their individual leadership qualities.

Several field trips are included in the program to various NASA Centers and facilities such as the - Langley Research Center and Wallops Flight Facility, another trip north to the Goddard Institute for Space Studies at Columbia University in New York City, a trip to the Kennedy Space Center in Florida (depending on the launch schedule), and possibly one to the west coast to the Jet Propulsion Lab, Dryden Flight Research Center and the SCRIPPS Oceanographic Institute in San Diego. Other weekend trips will be planned by the RAs upon arrival. Car owners are encouraged to bring their cars to afford maximum flexibility to the group.

Each of the ten weeks will be a unique group experience, but at the same time the students will be working on research projects with Investigators in Goddard laboratories or on our flight projects. Every morning after breakfast at Goddard the work starts at 8 am, lunch is at Goddard, and dinner is generally back at the Academy house.

"Ever desire to pull the face off your wristwatch or remove the cover from your radio to discover how these devices operate? NASA Academy does this to the space program, and just like seeing the springs of the watch or the circuit boards in the radio, you'll find yourself with familiar and unfamiliar objects that present to you the challenge of understanding how everything works together."

Laura Sachi - Academy '95

The Academy Group Project

Part of the Academy experience includes a special Group Project designed to cultivate the participant's teamwork and leadership skills. Although the topic will be pre-selected and will likely involve some form of collaboration with a Goddard educational partner, the International Space University (ISU), the academy RAs will decide what, when and how the assigned project will be executed. The title and specific details of the 2002 Group Project will be posted on the NASA Academy website no later than January 1, 2002.

The Academy Experience

This summer up to sixteen students interested in space or earth science or space engineering coming from all over the U.S. will be selected for the 10-week session to share a unique experience resulting from their own ingenuity and free spirit.

Teaching and learning are not the same. Teaching is the orthodoxy of our colleges and universities; learning is the "ah-ha!" process of finding out and understanding. That is our objective: to foster curiosity, to spirit endeavor, and to inspire leadership.

All of these elements make NASA Academy a unique experience. All that is needed is a group of unique individuals who can make these elements a meaningful education.

"The NASA Academy is a once-in-a-lifetime experience. In a ten-week period one learns more about NASA, government and industry relations with NASA, people, and oneself. It is an intense time of learning, experiencing, researching, meeting new people, making life-long friends, and basically having a great time. Not for those who enjoy relaxing, only for those with an intense desire to lead, and to learn about leading."

Todd Crowley - Academy '94

The NASA Academy is not a typical summer internship. Not only do the RAs work together, but they also live together. If you want to learn more about the "Academy" experience, some alumni have volunteered their contact information, and would be happy to answer any questions you may have about the Academy. NOTE: Contacting one of these people will in no way affect your selection.

CONTACTS:

Jim Brice ('94)	Brice.James@orbital.com
Deon Brown ('98)	ddb2s@alumni.virginia.edu
Alex Koerger ('98)	science@alumni.washington.edu
Ian Ruiz ('97)	Ian.Ruiz@nasa-academy.org
Mike Moreau ('94)	michael.moreau@gsfc.nasa.gov
Brian Roberts ('96)	bjr@po.cwru.edu
Travis Sparks ('98)	sparkst@visto.com
Tracee Walker ('98)	TWalker@NSES.com
Erin Roye ('00)	roye@stsci.edu
Mark Rentschler ('01)	mrentsch@mit.edu
Claribel Wendling ('01)	c.wendling@verizon.net
Christina Hammock ('01)	cmhammoc@unity.ncsu.edu
Joshua Layhue ('01)	jml269@psu.edu

"NASA Academy was a phenomenal experience that transcended the typical summer internship experience. The Academy provided more than just an opportunity to work on an innovative project with leaders in the industry. Through group projects, seminars, and field trips, it provided me with a firm foundation to succeed as an engineer in this industry."
Tracee Walker - Academy '98

NASA Academy 2002

Goddard Space Flight Center (GSFC)

APPLICATION

Due January 31, 2002

(to be submitted to the local State Space Grant Consortium)

The NASA Academy program is an important part of training the future space program leaders. It is co-sponsored by the NASA Goddard Space Flight Center and the National Space Grant College and Fellowship Program. Pre-screening of candidates is done by the Space Grant Consortium office (or other sponsoring organization) in your state. Space Grant Consortia Offices will pre-screen all applicants. Final selection of Academy summer Research Associates is made by a panel of high-ranking scientists, engineers, and Space Grant representatives complemented by distinguished university faculty members, and a select group of aerospace experts. This panel will be looking for appropriate matches to the research projects, as well as a variety of unique individual characteristics and interests. Selection criteria include: demonstrated enthusiasm and interest in space, leadership potential, interest in research projects, and overall academic quality (honors, awards, GPA, etc.). Applicants may apply to both the Goddard and Ames NASA Academies. Applications for both Academies can be found on their respective Academy links at:

http://www.nasa-academy.nasa.gov.

APPLICATION INSTRUCTIONS

Please read through the entire application before filling it out. TYPE OR PRINT NEATLY (blue or black ink) and pay special attention to the following:

- List the Space Grant Consortium Office (or other sponsoring organization) that will provide your stipend and round-trip travel. See item 12,
- The complete application contains six (6) sections including: (I) General Data, (II) Application Essays, (III) Education, (IV) Experience, (V) Special Skills, Hobbies, Interests, and (VI) Additional Application Materials.
- The essay questions (items 17A and 17B) are among the most important part of this application. Please pay particular attention to these items. Your selection will be based, in part, on a suitable match of your skills, competencies, and interests to a particular project.
- Finalists in the selection process will be contacted to schedule a telephone interview by a member of the University Program staff or NASA Academy Alumni Association (NAAA). The contact information listed in item # 9 will be used for this purpose and must be valid during the month of March 2002.
- Please return application materials in this order: I. General Data sheets, II. Application Essays (A & B), III. Education, IV. Experience, V. Special Skills, Hobbies, Interests, VI. Additional Application Materials - Bio, Resume, and Transcripts. (Please use a paper clip to attach materials together, do NOT staple).
- If you would like to be notified of various program announcements, if and when they occur, you are invited to leave your contact information (especially your email address) at the following url: http://128.183.112.68:591/guest.html (if you have not already done so)

FINAL APPLICATION INSTRUCTIONS:

Applications are due in your state's Space Grant Consortium Office by January 31, 2002. To obtain information about the Space Grant Office in your state, access the Space Grant website at: http://calspace.ucsd.edu/spacegrant/. The Space Grant Consortia have two types of sponsored organizations in

each state, one Lead institution and several Affiliate organizations. Support for the NASA Academy program can come from either of these two types of Space Grant Consortia. Please consult with the Lead Space Grant Office in your state to determine if that office is supporting the NASA Academy program for 2002. The Space Grant Office will review your application to ensure that it meets eligibility requirements. The Space Grant Office will forward to GSFC the applications they support for final consideration. When appropriate, student applications may be forwarded by Goddard NASA Academy to other Academy programs for consideration.

Please include all requested materials with your mailing. Selection notification letters will be mailed during the later part of March.

I. GENERAL DATA (Application to Goddard Space Flight Center NASA Academy)

1. Sponsoring Space Grant (State Abbreviation):____

2. Name _____ 3. SS#_____
last (family name)

_____ _____
first middle

4. Date of birth: _____/_____ /_____ 5. Marital status: _____married _____single
month day year

6. Gender: _____male _____female 7. Citizenship: _____US _____Permanent Resident

8. Ethnic status (check one) (optional)
_____African American _____Hispanic American _____Asian American
_____Native American _____Caucasian American _____other (specify)_____

9. Current mailing address (valid until:_____/_____/_____)
month day year

_____
address

_____ _____ _____
city state zip

_____ _____ _____
phone fax e-mail

10. How did you learn about the NASA Academy (circle one)? Space Grant, Professor, Poster, Friend, NASA Academy Alumni, website, email, other, please specify_____

11. Have you applied to NASA Academy before (Y/N)?_____
_____/_____/_____
If yes, what year(s) and center(s)? If participated, what year(s) and center(s)?

12. Space Grant (or other sponsoring organization)_____
_____

Contact person _____ _____
phone email

13. What is the highest level of your education you will have completed by May 2002?
_____sophomore year _____1st semester Junior year _____2nd semester Junior year
_____1st semester senior year _____2nd semester senior year _____graduate school (# of years)
NOTE: Students should be entering their junior, senior undergraduate or 1st or 2nd graduate year at the beginning of the Academy.

14. Current college/university information

_____
college/university location (city, state)

_____ _____/_____
major GPA / scale

_____ _____/_____
degree date expected (month/year)

15. Permanent address

_____
address

_____ _____ _____
city state zip

_____ _____ _____
phone fax e-mail

_____
dates you will be at this address

16. Health Information (Allergies, health problems, or any other condition that would affect a seven-day-per-week program participation)_____

_____

II. APPLICATION ESSAYS

17. Please attach two separate essays (maximum 400 words each) addressing the following:

A. After reviewing the GSFC website (http://www.gsfc.nasa.gov) and the following instructions, explain how your ***skills, competencies and interests*** would make you well suited to doing research this summer at Goddard. For your reference, there are Academy internships available this summer in **Space Science**, **Earth Science**, **Applied Engineering**, and one in **Education**. A general description of the typical skills and a sample of projects are provided below. However, please do not limit yourself to these projects alone as there are others that you could be placed with based on YOUR particular talents and interests.

Typical Space Science projects seek students with backgrounds in physics, electrical engineering, cyrogenics, computer science, optics, and control systems. Most require practical "hands-on" laboratory experience and computer analysis skills. A sample of Space Science projects this summer include working with superconductors, electromechanical modeling, and fabrication and testing of new low cost, lightweight, high performance antenna elements.

Typical Earth science projects seek students with backgrounds in engineering, physics, remote sensing, meteorology, materials, optics, and computer science. Again, most of these projects require practical "hands-on" laboratory experience and computer analysis skills. A sample of Earth Science projects this summer include working with hydrometerologic remote sensing instruments, measuring aerosol absorption, designing special optical filters, developing GIS datasets, researching lidar and laser altimeter technology, and miniaturizing instruments to fly on ultra light aircraft.

Typical Applied Engineering projects seek students with backgrounds in engineering, physics, digital electronics, chemistry, and materials science. Here again, most of these projects require practical "hands-on" laboratory experience and computer analysis skills. A sample of Applied Engineering projects this summer include evaluating a sintering process and all aspects of material synthesis, development of digital communications and signal processing technology, and design and analysis of wireless concepts for the strain sensor.

Typical Education projects seek students with backgrounds in education and outreach, and with good communications and computer skills. This summer, the education project involves making radio telescope observations with the Goddard radio telescope or remote radio telescopes, understanding how to analyze the data using project software, testing and improving educational materials from a high school point of view, and helping students or teachers to participate in the program either through use of their own equipment or by remotely controlling a telescope through the Internet and gathering data through this telescope.

B. Explain why you want to attend the NASA Academy, why you are interested in NASA and the aerospace program, what you hope to gain from the Academy experience, and what you can offer the Academy.

III. EDUCATION

18. Other colleges/universities you have attended (list those institutions at which you have completed at least one semester full-time or two semesters part-time).

College/University	Location (City, State)	Dates (From -To)	Credits/Degree Earned and Discipline	GPA

IV. EXPERIENCE

19. General work experience

20. Research experience and publications

V. SPECIAL SKILLS, HOBBIES, INTERESTS

21. Special skills/certifications (pilot's license, SCUBA, programming languages, etc.)

22. Aerospace or space science related activities (SEDS, AIAA, CAP, etc.; include dates of participation and any offices held)

23. General activities (extracurricular, athletics, arts, music, volunteer work, etc.; include dates of participation and any offices held)

24. Membership in professional groups or societies (IEEE, SAE, ASME, GSA, etc.; include duties and offices held)

25. Awards

26. Hobbies/interests

VI. ADDITIONAL APPLICATION MATERIALS

27. Please list the individuals that you have asked to send letters of recommendation:

    1._____
    2._____

28. Please include a 100-150 word biographical essay.

29. Please include a copy of your resume.

30. Please include an unofficial transcript from each of the universities you have attended.

31. If you are applying for any other NASA Academy programs this summer, please check which: _____Ames (Note: this will not affect your selection)